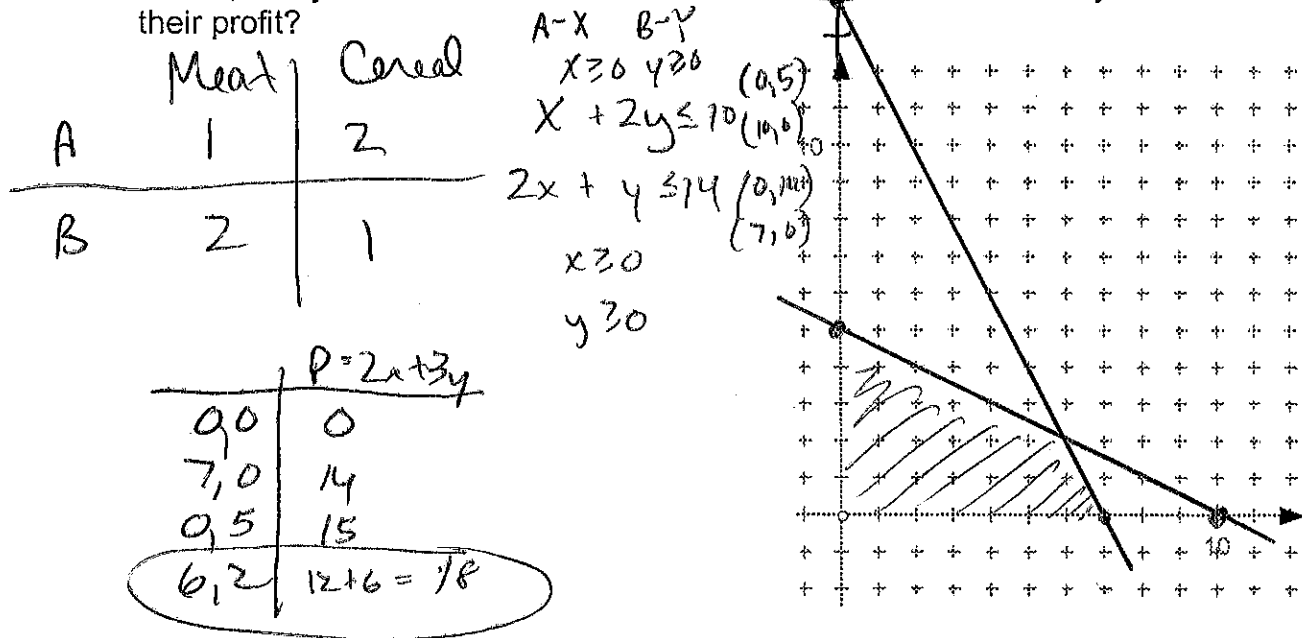


NAME \_\_\_\_\_

Date \_\_\_\_\_

Linear Programming # 3

1. Alice and Arthur Campbell have decided to produce and sell dog food. They will make two brands, A and B. They use 1 lb of meat with 2 lbs of cereal in brand A and 2 lbs of meat and 1 lb of cereal in brand B. They have 10 lbs of meat and 14 lbs of cereal to begin their business. They plan to charge \$2 per can of brand A and \$3 per can of brand B. Let  $x$  be the number of cans of brand A sold, and  $y$  be the number of cans of brand B sold. How can they maximize their profit?



2. A manufacturer makes two products, gadgets and widgets. He can't sell more than 5 cases of gadgets or 3 cases of widgets per day. It takes 1 hour for his plant to produce a case of gadgets and 2 hours to produce a case of widgets. The plant operates 8 hours a day. He has enough material to make not more than 6 cases of both together per day. If the profits on gadgets are \$20 per case, and on widgets \$30 per case, how should he plan his daily production?

$$G \leq 5 \quad G \geq 0$$

$$W \leq 3 \quad W \geq 0$$

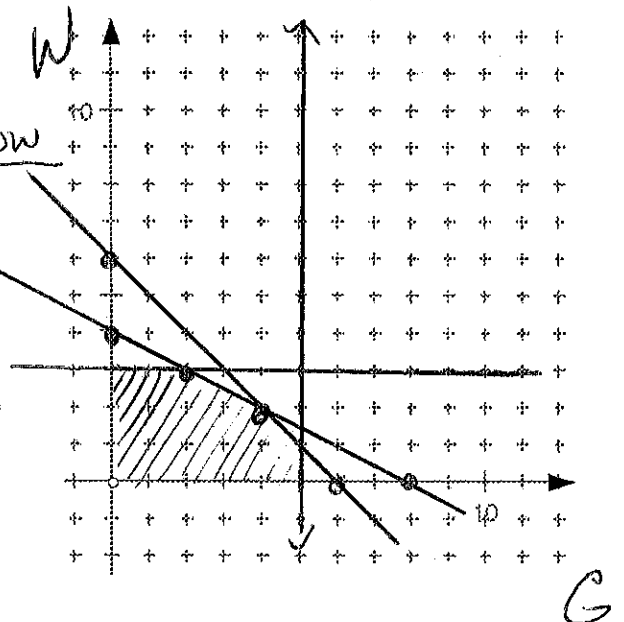
$$G + 2W \leq 8 \quad (0, 4)$$

$$(8, 0)$$

$$G + W \leq 6 \quad (0, 6)$$

$$(6, 0)$$

	$P = 20G + 30W$
(0, 0)	0
(0, 3)	90
(2, 3)	130
(4, 2)	140
(5, 1)	130
(5, 0)	100



3. ABC Electronics, Inc., the parent company of XYZ Records, manufactures compact disc changers and stereo receivers. A shipment of CD changers requires 2 hours of labor and a shipment of receivers requires 5 hours of labor. A changer takes 80 units of parts, while a receiver takes 100 units. The company has 30 total hours of labor and 800 total units of parts available. If the company makes \$30 on each CD changer and \$25 on each stereo receiver, how many of each product should ABC Electronics, Inc. manufacture to maximize their profits?

$$2C + 5R \leq 30 \quad \begin{matrix} (0,6) \\ (15,0) \end{matrix}$$

$$80C + 100R \leq 800 \quad \begin{matrix} (0,8) \\ (10,0) \end{matrix}$$

$$C \geq 0$$

$$R \geq 0$$

$P = 30C + 25R$	
0,0	0
0,6	150
5,4	250
10,0	300

